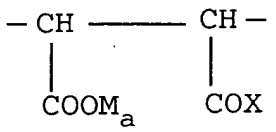
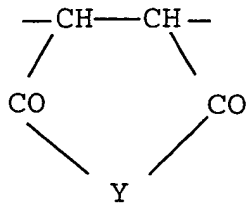
What is claimed is:

1. A process for dispersing a pigment for a paint, printing ink or pigment paste which comprises adding to the pigment a co-polymer based on oxyalkyleneglycol-alkylenyl ethers and unsaturated dicarboxylic acid derivatives comprising:

a) from about 10 to about 90 mol% of structural groups of the formula Ia and/or Ib



Ia



Ib

where

M = hydrogen, monovalent or divalent metal cation, ammonium ion, organic amine radical,

a = 1 or, if M is a divalent metal cation, is 1/2,

X = $-OM_a$ or $-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^1$,

where

R^1 = is H, an aliphatic hydrocarbon radical, a cycloaliphatic hydrocarbon, an aryl radical which is unsubstituted or substituted,

l = 1 or 2,

m = 2 to 18,

the index on the hydrogen atom being formed by the product of l and m, and

n = 0 to 100, and

o = 0 to 100,

$-NHR^2$ and/or $-NR^2_2$ where

$R^2 = R^1$ or $-CO-NH_2$ and also

$-Q^1N-Q^2-NQ^3Q^4$, where

Q^1 is a hydrogen atom or a monovalent hydrocarbon radical;

Q^2 is a divalent alkylene radical;

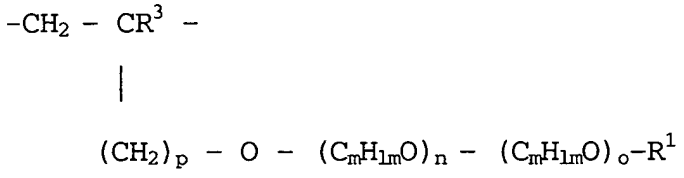
Q^3 and Q^4 are aliphatic and/or alicyclic alkyl radicals; and

unoxidized or oxidized to $-Q^1N-Q^2-N^{(+)}O^{(-)}Q^3Q^4$,

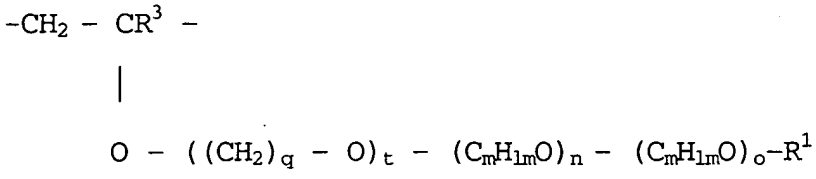
Y = O, NR^2, R^2 being as defined above, or

$N-Q^2-NQ^3Q^4$, Q^2, Q^3 and Q^4 being as defined above,

b) from about 1 to about 89 mol% of structural groups of the formula IIa or IIb



IIa



IIb

in which

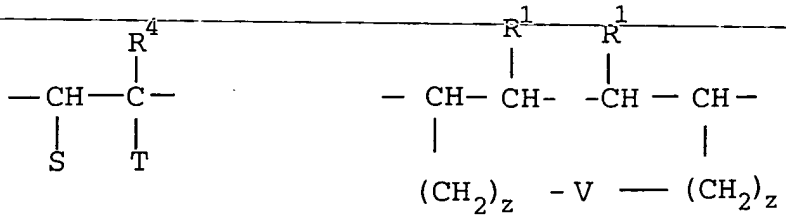
R^3 = H, aliphatic hydrocarbon radical,

p = 0 to 3,

q = 0 to 6, t = 0 to 3, and

R^1 and l, m, n and o are as defined above,

c) about 0.1 to about 10 mol% structural groups of the formula IIIa or IIIb



IIIa IIIb

where

R^4 = H, CH_3

S = $-H, -COOM_a, -COOR^5$

where R^5 = aliphatic hydrocarbon radical,

cycloaliphatic hydrocarbon radical,

aryl radical

T = $-U^1-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^6$

where l = 1 or 2, m = 2 to 18, and

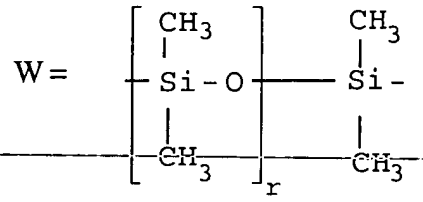
n = 0 to 100 and o = 0 to 100,

$U^1 = -CO-NH-, -O-, -CH_2O-$,

R^6 = R^1, $-CH_2-CH-U^2-C=CH$

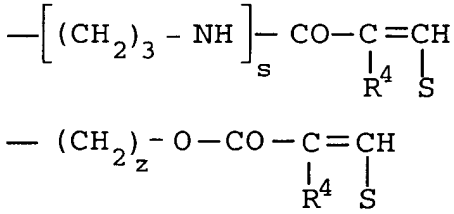
R^4 R^4 S

where $U^2 = -NH-CO-, -O-, -OCH_2, -W-R^7$, where



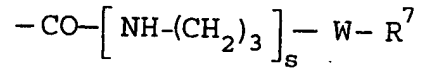
r = 2 to 100

$R^7 = R^1$,



s = 1 or 2

z = 0 to 4,



$-CO-O-(CH_2)_Z-W-R^7$

$-(CH_2)_Z-V-(CH_2)_Z-CH=CH-R^1$, where

V = $-O-CO-C_6H_4-CO-O-$ or $-W-$,

$-COOR^5$ in the case of S = $-COOR^5$ or $COOM_a$,

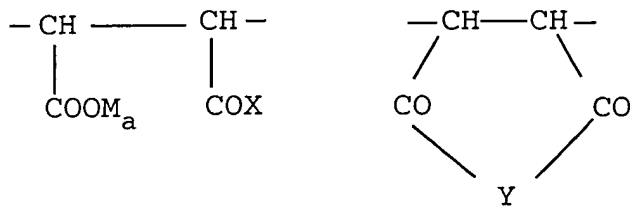
and

$V = -O-CO-C_6H_4-CO-O-$ or $-W$,

the ligands and indices each being as defined above.

2. The method according to claim 1, wherein the copolymers comprise

a) from 10 to 90 mol% of structural groups of the formula Ia and/or Ib



Ia Ib

where

M = hydrogen, monovalent or divalent metal cation, ammonium ion, organic amine radical,

a = 1 or, if M is a divalent metal cation, is 1/2,

X = $-OM_a$ or $-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^1$,

where

R^1 = is H, an aliphatic hydrocarbon radical having 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon having 5 to 8 carbon atoms, an aryl radical having 6 to 14 carbon atoms which is unsubstituted or substituted,

l = 1 or 2,

m = 2 to 18,

the index on the hydrogen atom being formed by the product of l and m, and

n = 0 to 100, and

o = 0 to 100,

$-NHR^2$ and/or $-NR^2_2$ where

$R^2 = R^1$ or $-CO-NH_2$ and also

$-Q^1N-Q^2-NQ^3Q^4$, where

Q^1 is a hydrogen atom or a monovalent hydrocarbon radical having 1 to 24 carbon atoms,

Q^2 is a divalent alkylene radical having 2 to 24 carbon atoms,

Q^3 and Q^4 are aliphatic and/or alicyclic alkyl radicals having 1 to 12 carbon atoms, and

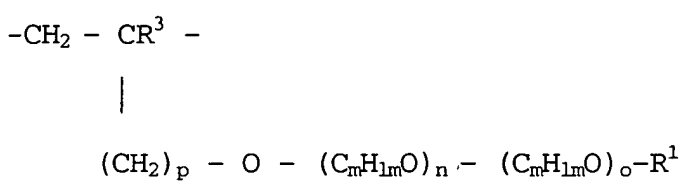
unoxidized or oxidized to $-Q^1N-Q^2-N^{(+)}O^{(-)}Q^3Q^4$,

Y = O, NR^2, R^2 being as defined above, or $N\text{-}Q^2\text{-}NQ^3Q^+$

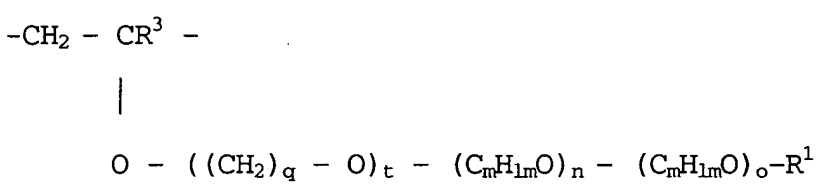
where

Q^2, Q^3 and Q^4 being as defined above,

b) from 1 to 89 mol% of structural groups of the formula IIa or IIb



IIa



IIb

in which

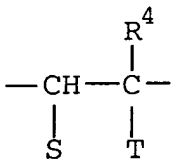
R^3 = H, aliphatic hydrocarbon radical having 1 to 5 carbon atoms,

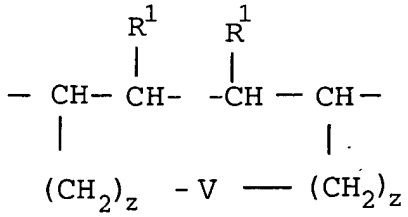
p = 0 to 3,

q = 0 to 6, t = 0 to 3, and

R^1 and l, m, n and o are as defined above,

c) 0.1 to 10 mol% structural groups of the formula IIIa or IIIb





IIIa IIIb

where

R^4 = H, CH_3

S = $-H, -COOM_a, -COOR^5$

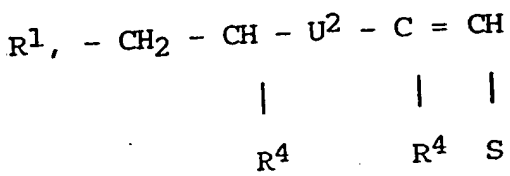
where R^5 = aliphatic hydrocarbon radical having 3 to 20 carbon atoms, cycloaliphatic hydrocarbon radical having 5 to 8 carbon atoms, aryl radical having 6 to 14 carbon atoms

T = $-U^1-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^6$

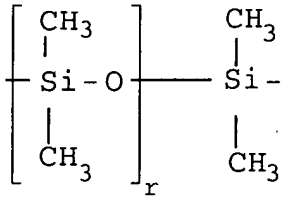
where l = 1 or 2, m = 2 to 18, and

n = 0 to 100 and o = 0 to 100,

$U^1 = -CO-NH-, -O-, -CH_2O-$,

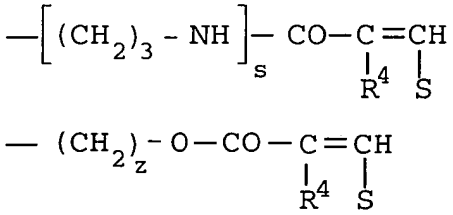
$R^6 =$ 

where $U^2 = -NH-CO-, -O-, -OCH_2, -W-R^7$, where

$W =$ 

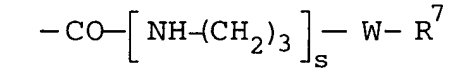
$r = 2$ to 100

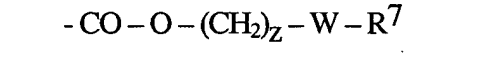
$R^7 = R^1$,



$s = 1$ or 2

$z = 0$ to 4,





$-(CH_2)_Z-V-(CH_2)_Z-CH=CH-R^1$, where

$V =$ $-O-CO-C_6H_4-CO-O-$ or $-W-$,

$-COOR^5$ in the case of $S = -COOR^5$ or $COOM_a$,

and

V = $-O-CO-C_6H_4-CO-O-$ or -W,

the ligands and indices each being as defined above;

3. The method according to claim 1, where, in the copolymers, up to about 50 mol%, based on the sum of a structural groups a), b) and c), of components, the monomers of which are vinyl, acrylic acid or methacrylic acid.

4. The method according to claim 1, where, in the copolymers, up to about 20 mol%, based on the sum of structural groups a), b) and c), of components, the monomers of which are vinyl, acrylic acid or methacrylic acid.

5. The method according to claim 1, where the copolymers comprise about 40 to about 55 mol% of a component of formula Ia and Ib; about 40 to about 55 mol% of a component of formula II; and from about 0.1 to about 5 mole% of a component of formula III or IIIb.

6. The method according to claim 1, where the copolymers comprise a component of structural formula Ia and/or Ib which is a dicarboxylic acid derivative containing at least one amino oxide group.

7. The method according to claim 1, where the copolymers comprise a component of structural formula IIIa and/or IIIb which are obtained by a process comprising vinyl-type polysiloxane compounds.

8. A dispersed pigment obtained by the process according to claim 1.

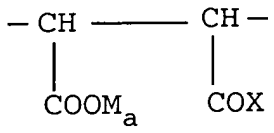
9. A printing ink, paint or pigment paste which comprises a dispersed pigment according to claim 8.

10. An aqueous pigment concentrate which comprises

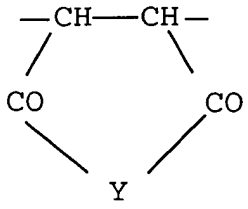
-- a pigment;

– a copolymer based on oxyalkylenealkylglycol-alkylene ethers and unsaturated dicarboxylic acid derivative comprising

a) from about 10 to about 90 mol% of structural groups of the formula Ia and/or Ib



Ia



Ib

where

M = hydrogen, monovalent or divalent metal cation, ammonium ion, organic amine radical,

a = 1 or, if M is a divalent metal cation, is 1/2,

X = $-OM_a$ or $-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^1$,

where

R^1 = is H, an aliphatic hydrocarbon radical;

a cycloaliphatic hydrocarbon;

an aryl radical which is unsubstituted or substituted.

l = 1 or 2,

m = 2 to 18,

the index on the hydrogen atom being formed by the product of l and m, and

n = 0 to 100, and

o = 0 to 100,

$-NHR^2$ and/or $-NR^2_2$ where
$R^2 = R^1$ or $-CO-NH_2$ and also

$-Q^1N-Q^2-NQ^3Q^4$, where

Q^1 is a hydrogen atom or a monovalent hydrocarbon radical;

Q^2 is a divalent alkylene radical;

Q^3 and Q^4 are aliphatic and/or alicyclic alkyl radicals, and

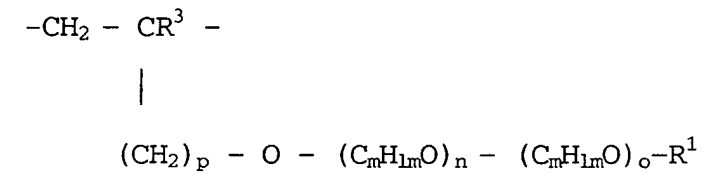
unoxidized or oxidized to $-Q^1N-Q^2-N^{(+)}O^{(-)}Q^3Q^4$,

Y = O, NR^2, R^2 being as defined above, or $N\text{-}Q^2\text{-}NQ^3Q^4$,

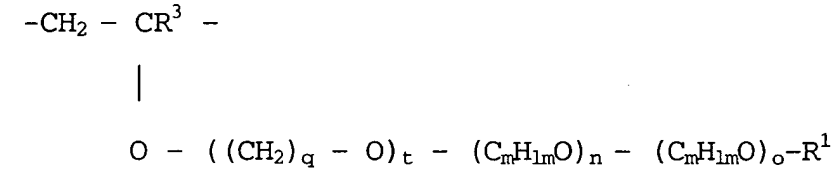
where

Q^2, Q^3 and Q^4 being as defined above,

b) from about 1 to about 89 mol% of structural groups of the formula IIa or IIb



IIa



IIb

in which

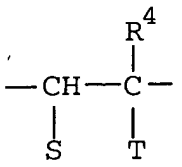
R^3 = H, aliphatic hydrocarbon radical,

p = 0 to 3,

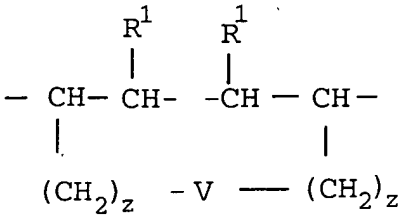
q = 0 to 6, t = 0 to 3, and

R^1 and l, m, n and o are as defined above,

c) about 0.1 to about 10 mol% structural groups of the formula IIIa or IIIb



IIIa



IIIb

where

R^4 = H, CH_3

S = $-H, -COOM_a, -COOR^5$

where R^5 = aliphatic hydrocarbon radical;

cycloaliphatic hydrocarbon radical;

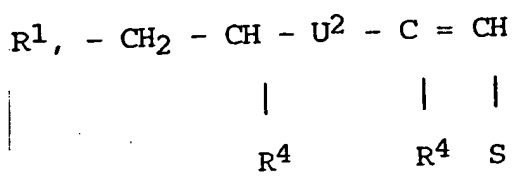
aryl radical.

T = $-U^1-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^6$

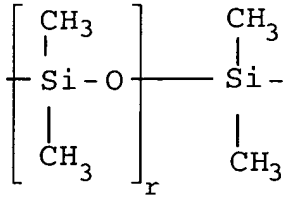
where l = 1 or 2, m = 2 to 18, and

n = 0 to 100 and o = 0 to 100,

$U^1 = -CO-NH-, -O-, -CH_2O-$,

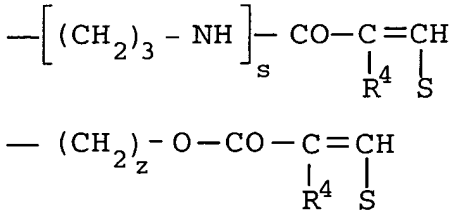
$R^6 =$ 

where $U^2 = -NH-CO-, -O-, -OCH_2, -W-R^7$, where

$W =$ 

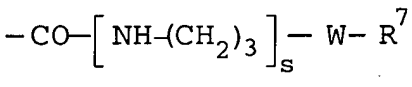
$r = 2$ to 100

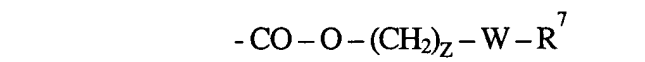
$R^7 = R^1$,



$s = 1$ or 2

$z = 0$ to 4,





$-(CH_2)_Z-V-(CH_2)_Z-CH=CH-R^1$, where

$V =$ $-O-CO-C_6H_4-CO-O-$ or $-W-$,

$-COOR^5$ in the case of $S = -COOR^5$ or $COOM_a$,

and

V = $-O-CO-C_6H_4-CO-O-$ or $-W$, 3-7

the ligands and indices each being as defined above;

-- water;

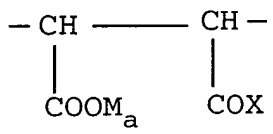
-- optionally a co-solvent; and

-- optionally an auxiliary.

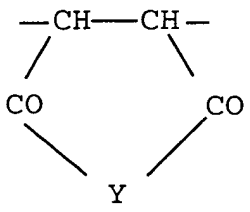
11. The aqueous pigment concentrate according to claim 10, wherein a co solvent is present and it is a glycol ester or a glycol ester.

12. The aqueous pigment concentrate according to claim 10, wherein the copolymer based on oxyalkylenealkylglycol-alkylene and unsaturated dicarboxylic acid derivative comprises:

a) from 10 to 90 mol% of structural groups of the formula Ia and/or Ib



Ia



Ib

where

M = hydrogen, monovalent or divalent metal cation, ammonium ion, organic amine radical,

a = 1 or, if M is a divalent metal cation, is 1/2,

X = $-OM_a$ or $-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^1$,

where

R^1 = is H, an aliphatic hydrocarbon radical having 1 to 20 carbon atoms, a cycloaliphatic hydrocarbon having 5 to 8 carbon atoms, an aryl radical having 6 to 14 carbon atoms which is unsubstituted or substituted,

l = 1 or 2,

m = 2 to 18,

the index on the hydrogen atom being formed by the product of l and m, and

n = 0 to 100, and

o = 0 to 100,

$-NHR^2$ and/or $-NR^2_2$ where

$R^2 = R^1$ or $-CO-NH_2$ and also

$-Q^1N-Q^2-NQ^3Q^4$, where

Q^1 is a hydrogen atom or a monovalent hydrocarbon radical having 1 to 24 carbon atoms,

Q^2 is a divalent alkylene radical having 2 to 24 carbon atoms,

Q^3 and Q^4 are aliphatic and/or alicyclic alkyl radicals having 1 to 12 carbon atoms, and

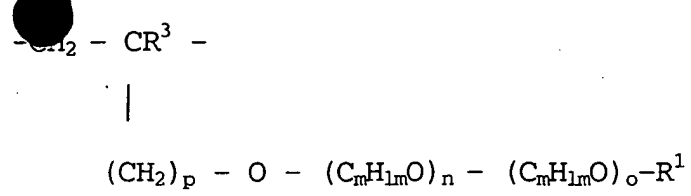
unoxidized or oxidized to $-Q^1N-Q^2-N^{(+)}O^{(-)}Q^3Q^4$,

Y = O, NR^2, R^2 being as defined above, or $N\text{-}Q^2\text{-}NQ^3$

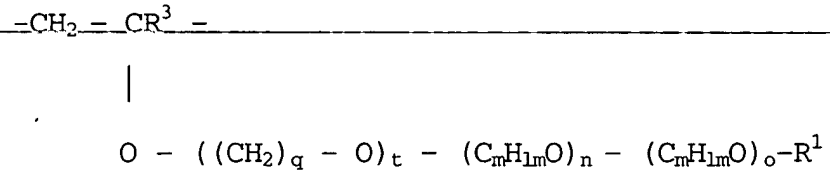
where

Q^4, Q^2, Q^3 and Q^4 being as defined above,

b) from 1 to 89 mol% of structural groups of the formula IIa or Iib



IIa



IIb

in which

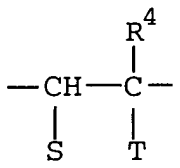
R^3 = H, aliphatic hydrocarbon radical having 1 to 5 carbon atoms,

p = 0 to 3,

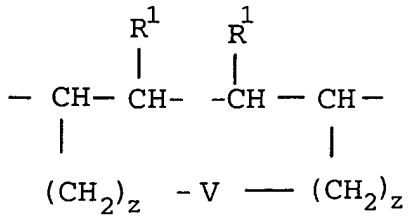
q = 0 to 6, t = 0 to 3, and

R^1 and l, m, n and o are as defined above,

c) 0.1 to 10 mol% structural groups of the formula IIIa or IIIb



IIIa



IIIb

where

R^4 = H, CH_3

S = $-H, -COOM_a, -COOR^5$

where R^5 = aliphatic hydrocarbon radical having 3 to 20 carbon atoms, cycloaliphatic hydrocarbon radical having 5 to 8 carbon atoms, aryl radical having 6 to 14 carbon atoms

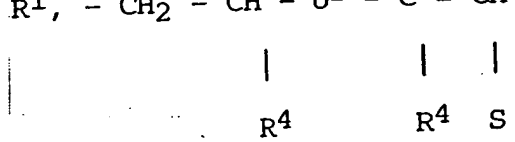
T = $-U^1-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^6$

where l = 1 or 2, m = 2 to 18, and

n = 0 to 100 and o = 0 to 100,

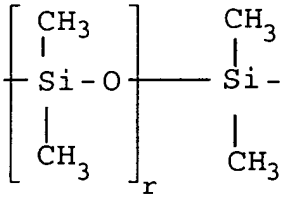
$U^1 = -CO-NH-, -O-, -CH_2O-$,

R^6 =



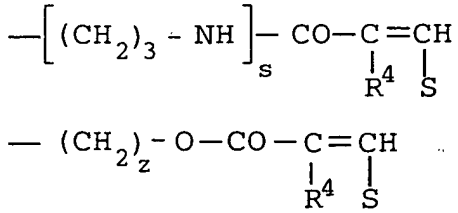
where $U^2 = -NH-CO-, -O-, -OCH_2, -W-R^7$, where

W =



r = 2 to 100

$R^7 = R^1$,



s = 1 or 2

z = 0 to 4,

$$-CO-\left[NH-(CH_2)_3\right]_s-W-R^7$$

$$-CO-O-(CH_2)_Z-W-R^7$$

$$-(CH_2)_Z-V-(CH_2)_Z-CH=CH-R^1, \text{ where}$$

$$V= \quad -O-CO-C_6H_4-CO-O- \text{ or } -W-,$$

$-COOR^5$ in the case of $S = -COOR^5$ or $COOM_a$,

and

$V = \quad -O-CO-C_6H_4-CO-O- \text{ or } -W,$

the ligands and indices each being as defined above.

13. The aqueous pigment concentrate according to claim 10, which contains about 0.1 to about 200 % by weight of copolymers, based on the amount of pigment.

14. The aqueous pigment concentrate according to claim 10, wherein the pigment is an inorganic pigment.

15. The aqueous pigment concentrate according to claim 14, wherein the pigment is an iron oxide.

16. The aqueous pigment concentrate according to claim 14, wherein the pigment is a transparent iron oxide.

17. A coating system which comprises an aqueous pigment concentrate according to claim 10 and an aqueous coating material.

18. The coating system according to claim 17, wherein the coating material is a one-component coating material which is based on alkyl, acrylate, epoxy, polyvinyl acetate, polyester or polyurethane resins.

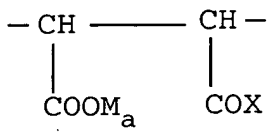
19. The coating system according to claim 17, wherein the coating material is two-component coating material based on hydroxyl-containing polyacrylate or polyester resins with melamine resins or optionally blocked polyisocyanate resins as cross linkers, or polyepoxide resins.

20. A pigment concentrate which comprises

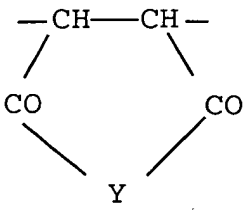
-- a pigment;

-- a copolymer based upon oxyalkylenealkylglycol-alkylene ethers and unsaturated dicarboxylic acid derivatives comprising:

a) from about 10 to about 90 mol% of structural groups of the formula Ia and/or Ib



Ia



Ib

where

M = hydrogen, monovalent or divalent metal cation, ammonium ion, organic amine radical,

a = 1 or, if M is a divalent metal cation, is 1/2,

X = $-OM_a$ or $-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^1$,

where

R^1 = is H, an aliphatic hydrocarbon radical, a cycloaliphatic hydrocarbon, an aryl radical which is unsubstituted or substituted,

l = 1 or 2,

m = 2 to 18,

the index on the hydrogen atom being formed by the product of l and m, and

n = 0 to 100, and

o = 0 to 100,

$-NHR^2$ and/or $-NR^2_2$ where

$R^2 = R^1$ or $-CO-NH_2$ and also

$-Q^1N-Q^2-NQ^3Q^4$, where

Q^1 is a hydrogen atom or a monovalent hydrocarbon radical;

Q^2 is a divalent alkylene radical;

Q^3 and Q^4 are aliphatic and/or alicyclic alkyl radicals; and

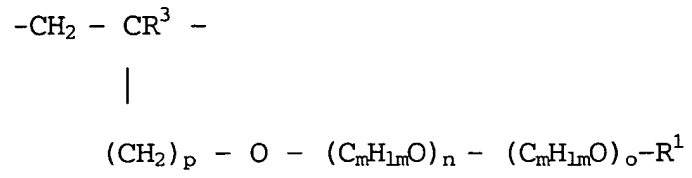
unoxidized or oxidized to $-Q^1N-Q^2-N^{(+)}O^{(-)}Q^3Q^4$,

Y = O, NR^2, R^2 being as defined above, or $N\text{-}Q^2\text{-}NQ^3Q^4$,

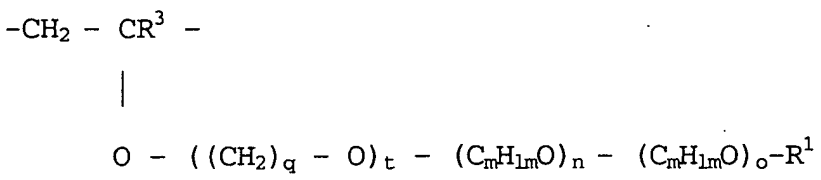
where

Q^2, Q^3 and Q^4 being as defined above,

b) from about 1 to about 89 mol% of structural groups of the formula IIa or IIb



IIa



IIb

in which

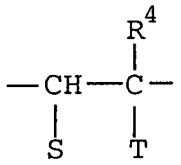
R^3 = H, aliphatic hydrocarbon radical,

p = 0 to 3,

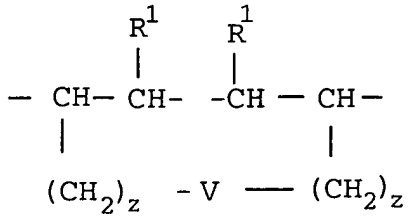
q = 0 to 6, t = 0 to 3, and

R^1 and l, m, n and o are as defined above,

c) about 0.1 to about 10 mol% structural groups of the formula IIIa or IIIb



IIIa



IIIb

where

R^4 = H, CH_3

S = $-H$, $-COOM_a$, $-COOR^5$

where R^5 = aliphatic hydrocarbon radical,

cycloaliphatic hydrocarbon radical,

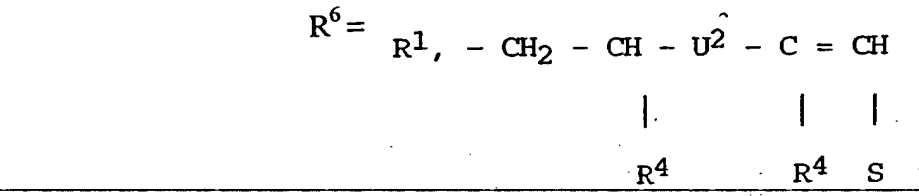
aryl radical

T = $-U^1-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^6$

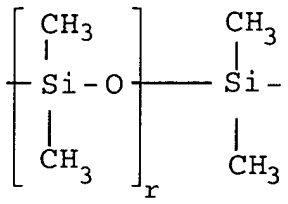
where l = 1 or 2, m = 2 to 18, and

n = 0 to 100 and o = 0 to 100,

$U^1 = -CO-NH-, -O-, -CH_2O-$,

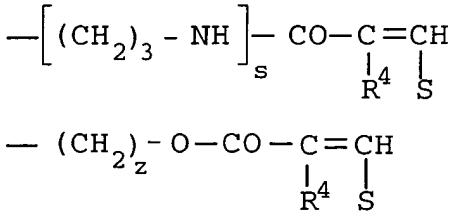
$R^6 =$ 

where $U^2 = -NH-CO-, -O-, -OCH_2-, -W-R^7$, wnere

$W =$ 

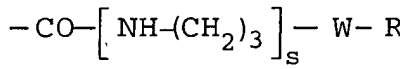
r = 2 to 100

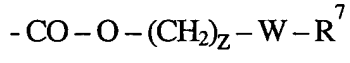
$R^7 = R^1$,



s = 1 or 2

z = 0 to 4,





$-(CH_2)_Z-V-(CH_2)_Z-CH=CH-R^1$, where

V = $-O-CO-C_6H_4-CO-O-$ or $-W-$,

$-COOR^5$ in the case of S = $-COOR^5$ or $COOM_a$,

and

V = $-O-CO-C_6H_4-CO-O-$ or $-W$,

the ligands and indices each being as defined above;

-- optionally, at least one solvent,

-- optionally, an auxiliary.

21. A method for improving the resistance of a paint to weathering which comprises adding a pigment concentrate according to claim 20 to the paint.

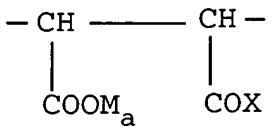
22. The pigment concentrate according to claim 20, which further comprises a water-dispensable polymer, which is a polyacylate, polyurethane, or a polysiloxane.

23. An aqueous pigment concentrate comprising:

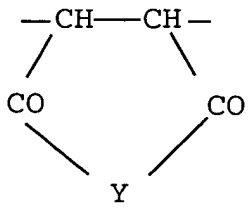
-- a pigment;

-- a copolymer obtained by polymerizing oxyalkyleneglycol-alkenyl ether monomers and unsaturated dicarboxylic acid derivatives comprising:

a) from about 10 to about 90 mol% of structural groups of the formula Ia and/or Ib



Ia



Ib

where

M = hydrogen, monovalent or divalent metal cation, ammonium ion, organic amine radical,

a = 1 or, if M is a divalent metal cation, is 1/2,

X = $-OM_a$ or $-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^1$,

where

R^1 = is H, an aliphatic hydrocarbon radical a cycloaliphatic hydrocarbon, an aryl radical which is unsubstituted or substituted,

l = 1 or 2,

m = 2 to 18,

the index on the hydrogen atom being formed by the product of l and m, and

n = 0 to 100, and

o = 0 to 100,

$-NHR^2$ and/or $-NR^2_2$ where

$R^2 = R^1$ or $-CO-NH_2$ and also

$-Q^1N-Q^2-NQ^3Q^4$, where

Q^1 is a hydrogen atom or a monovalent hydrocarbon radical;

Q^2 is a divalent alkylene radical;

Q^3 and Q^4 are aliphatic and/or alicyclic

alkyl radicals; and

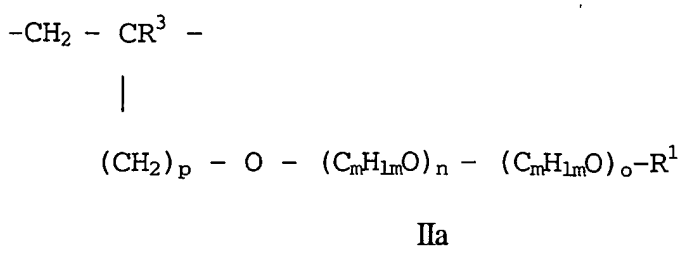
unoxidized or oxidized to $-Q^1N-Q^2-N^{(+)}O^{(-)}Q^3Q^4$,

Y = O, NR^2, R^2 being as defined above, or $N-Q^2-NQ^3Q^4$,

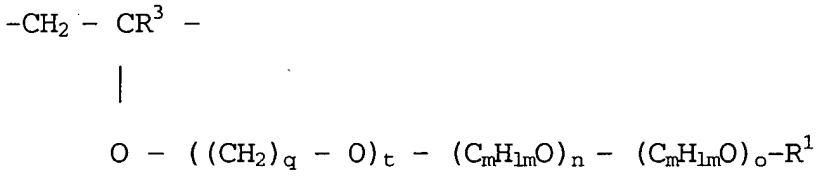
where

Q^2, Q^3 and Q^4 being as defined above,

b) from about 1 to about 89 mol% of structural groups of the formula IIa or IIb



IIa



IIb

in which

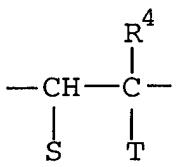
R^3 = H, aliphatic hydrocarbon radical,

p = 0 to 3,

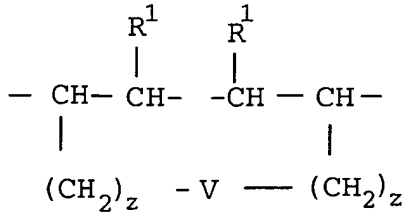
q = 0 to 6, t = 0 to 3, and

R^1 and l, m, n and o are as defined above,

c) about 0.1 to about 10 mol% structural groups of the formula IIIa or IIIb



IIIa



IIIb

where

R^4 = H, CH_3

S = $-H, -COOM_a, -COOR^5$

where R^5 = aliphatic hydrocarbon radical;

cycloaliphatic hydrocarbon radical;

aryl radical.

T = $-U^1-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^6$

where l = 1 or 2, m = 2 to 18, and

n = 0 to 100 and o = 0 to 100,

$U^1 = -CO-NH-, -O-, -CH_2O-$,

R^6 = R^1, $-CH_2-CH(R^4)-U^2-C(R^4)=CH(S)$

where $U^2 = -NH-CO-, -O-, -OCH_2, -W-R^7$,

where

W = $\left[\begin{array}{c} CH_3 \\ | \\ -Si-O- \\ | \\ CH_3 \end{array}\right]_r \begin{array}{c} CH_3 \\ | \\ -Si- \\ | \\ CH_3 \end{array}$

r = 2 to 100

$R^7 = R^1$,

$-\left[(CH_2)_3-NH\right]_s-CO-C(R^4)=CH(S)$

$-(CH_2)_z-O-CO-C(R^4)=CH(S)$

s = 1 or 2

$z = 0$ to 4,

$$-CO-\left[NH-(CH_2)_3\right]_s-W-R^7$$

$$-CO-O-(CH_2)_Z-W-R^7$$

$$-(CH_2)_Z-V-(CH_2)_Z-CH=CH-R^1, \text{ where}$$

$V =$ $-O-CO-C_6H_4-CO-O-$ or $-W-$,

$-COOR^5$ in the case of $S = -COOR^5$ or $COOM_a$,

and

$V =$ $-O-CO-C_6H_4-CO-O-$ or $-W$,

the ligands and indices each being as defined above

wherein the polymerization occurs in aqueous solution at a temperature of from about 20 to about 100°C in the presence of a free-radical initiator.

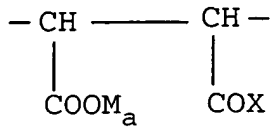
-- water;

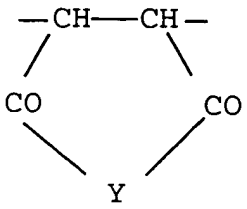
-- optionally, a co-solvent; and

-- optionally, an auxiliary.

24. A process for dispensing a pigment for a paint, printing ink or pigment paste which comprises adding to the pigment a co-polymer obtained by polymerizing oxyalkyleneglycol-alkylenyl ether and unsaturated dicarboxylic acid derivatives comprising:

a) from about 10 to about 90 mol% of structural groups of the formula Ia and/or Ib





Ia Ib

where

M = hydrogen, monovalent or divalent metal cation, ammonium ion, organic amine radical,

a = 1 or, if M is a divalent metal cation, is 1/2,

X = $-OM_a$ or $-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^1$,

where

R^1 = is H, an aliphatic hydrocarbon radical a cycloaliphatic hydrocarbon, an aryl radical which is unsubstituted or substituted,

l = 1 or 2,

m = 2 to 18,

the index on the hydrogen atom being formed by the product of l and m, and

n = 0 to 100, and

o = 0 to 100,

$-NHR^2$ and/or $-NR^2_2$ where

$R^2 = R^1$ or $-CO-NH_2$ and also

$-Q^1N-Q^2-NQ^3Q^4$, where

Q^1 is a hydrogen atom or a monovalent hydrocarbon radical;

Q^2 is a divalent alkylene radical;

Q^3 and Q^4 are aliphatic and/or alicyclic

alkyl radicals; and

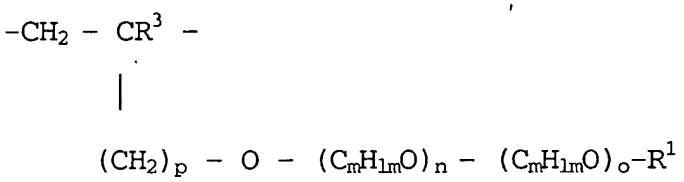
unoxidized or oxidized to $-Q^1N-Q^2-N^{(+)}O^{(-)}Q^3Q^4$,

Y = O, NR^2, R^2 being as defined above, or $N\text{-}Q^2\text{-}NQ^3Q^4$,

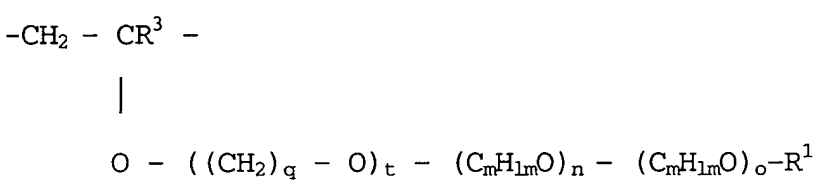
where

Q^2, Q^3 and Q^4 being as defined above,

b) from about 1 to about 89 mol% of structural groups of the formula IIa or IIb



IIa



IIb

in which

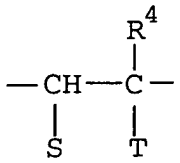
R^3 = H, aliphatic hydrocarbon radical,

p = 0 to 3,

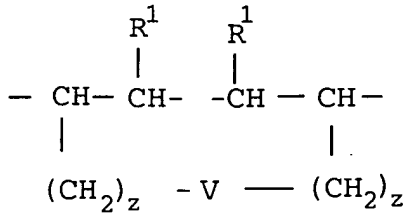
q = 0 to 6, t = 0 to 3, and

R^1 and l, m, n and o are as defined above,

c) about 0.1 to about 10 mol% structural groups of the formula IIIa or IIIb



IIIa



IIIb

where

R^4 = H, CH_3

S = $-H, -COOM_a, -COOR^5$

where R^5 = aliphatic hydrocarbon radical;

cycloaliphatic hydrocarbon radical;

aryl radical,

T = $-U^1-O-(C_mH_{lm}O)_n-(C_mH_{lm}O)_o-R^6$

where l = 1 or 2, m = 2 to 18, and

n = 0 to 100 and o = 0 to 100,

$U^1 = -CO-NH-, -O-, -CH_2O-$,

R^6 = R^1, $-CH_2-CH(R^4)-U^2-C(R^4)=CH(S)$

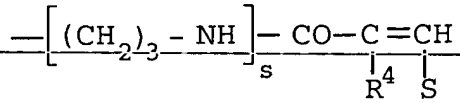
where $U^2 = -NH-CO-, -O-, -OCH_2, -W-R^7$

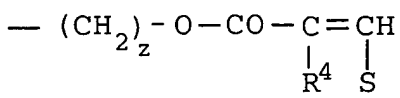
where

W = $\left[Si(CH_3)_2-O\right]_r-Si(CH_3)_2-$

r = 2 to 100

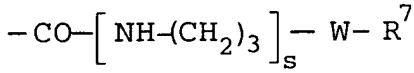
$R^7 = R^1$,





s = 1 or 2

z = 0 to 4,



$-(CH_2)_Z-V-(CH_2)_Z-CH=CH-R^1$, where

V = $-O-CO-C_6H_4-CO-O-$ or $-W-$,

$-COOR^5$ in the case of S = $-COOR^5$ or $COOM_a$,

and

V = $-O-CO-C_6H_4-CO-O-$ or $-W$,

the ligands and indices each being as defined above

wherein the polymerization occurs in aqueous solution at a temperature of from about 20°C to about 100°C in the presence of a free-radical initiator.